Voluntary Stack Testing in Ontario

Environment Canada

Great Lakes Binational Toxics Strategy

November 30, 2004

Background

- Started in 2000
- Substances (negotiated)
  - VOCs
  - CO
  - PM
  - Metals
  - Toxics

Background (continued)

- Sampling and testing by EC staff
- Environment Canada pays for the analyses
- Results are made public

Volunteers

- 2000
  - Hospital for Sick Children (biomedical waste)
  - Gerdau Courtice Steel (electric arc furnace steel making)
- 2001
  - Falconbridge Limited - Kidd Creek Metallurgical (copper smelter)
  - Wescast Industries – Simo Iron Foundry (iron exhaust manifolds)

Volunteers (continued)

- 2002
  - Roselawn Memorial Gardens Crematorium
  - Hamilton Health Sciences (biomedical waste)
  - Norampac Inc. – Red Rock Division (unbleached kraft pulp to make linerboard)
- 2003
  - Marathon Pulp Inc. (bleached kraft pulp from softwood)
  - University of Guelph Arkell Research Station (animal crematorium using Burn Easy Model 37-1)
  - EcoWaste Solutions (animal crematorium using CleanAire Cremator)

Volunteers (continued)

- 2004
  - Newmont Mining Corporation (gold mill and refinery)
  - University of Guelph Arkell Research Station (new cremator model)

Results – Pulp & Paper / Biomedical

Sub	Norampac (Pulp & Paper)		Marathon (Pulp & Paper)	
	Conc	Em	Conc	Em
D/F	1.75 pg TEQ/m^3	0.005 g TEQ/y	21.18 pg TEQ/m^3	0.03 g TEQ/y
HCB	0.43 ng/m^3	0.820 g/y	1.49 ng/m^3	2.27 g/y
OCS	ND	ND	NM	NM
PAH	183 µg/m^3	349 kg/y	0.54 µg/m^3	0.82 kg/y
BaP	0.35 ng/m^3	0.67 kg/y	ND	ND

Sub	Hospital for Sick Children (biomedical)		Hamilton Health Sciences (biomedical)	
	Conc	Em	Conc	Em
D/F	11,516 pg TEQ/m^3	0.05 g TEQ/y	4,803 pg TEQ/m^3	0.03 g TEQ/y
HCB	206 ng/m^3	1 g/y	352 ng/m^3	2.1 g/y
OCS	ND	ND	2.6 ng/m^3	0.02 g/y
PAH	59 µg/m^3	0.276 kg/y	0.172 µg/m^3	1 g/y
BaP	0.7 µg/m^3	0.0034 kg/y	ND	ND

Results - Crematoria

Sub	Roselawn (human)	U. Of Guelph - BEM (animal)		EcoWaste (animal)	
	Em	Em (poultry)	Em (swine)	Em (poultry)	Em (swine)
D/F	79 µg TEQ/y	0.59 µg TEQ/y	1 µg TEQ/y	0.49 µg TEQ/y	0.49 µg TEQ/y
HCB	3.6 mg/y	0.01 mg/y	0.03 mg/y	0.03 mg/y	0.04 mg/y
OCS	ND	ND	ND	ND	ND
PAH	18.1 g/y	0.0386 g/y	671 mg/y	16.5 mg/y	17.1 mg/y
BaP	ND	ND	ND	ND	ND

Results – Metals Industries

Sub	Falconbridge (Copper Smelter)		Gerdau Courtice Steel (Electric Arc Furnace)		Wescast Industries (Iron Exhaust Manifolds)	
	Conc	Em	Conc	Em	Conc	Em
D/F	2.28 pg TEQ/m^3	2 mg/y	153 pg TEQ/m^3	-----	0.63 pg TEQ/m^3	0.0013 mg/y
HCB	18 ng/m^3	16 g/y	5.8 ng/m^3	-----	ND	ND
OCS	ND	ND	ND	-----	ND	ND
PAH	0.2 µg/m^3	18 g/y	NM	-----	0.04 µg/m^3	0.08 kg/y
BaP	ND	ND	NM	-----	ND	ND

Findings

- Very useful for inventory development
  - Verify whether a sector is a source or not (i.e., pulp and paper)
  - Provide new information (i.e., crematoria)
- Industry using information for reporting purposes and justifying upgrades

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